ISSN 0704-3716

Canadian Translation of Fisheries and Aquatic Sciences

No. 5529

Mechanical shucking of scallops

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Original title: Urskeljun horpudisks med vélum

In: Taeknitidindi rannsoknastofnun fiskidnadarins/[Eng. News Icelandic Fish. Lab.] 6: 1-3, 1972

Original language: Icelandic

Available from:
Canada Institute for Scientific and Technical Information
National Research Council
Ottawa, Ontario, Canada K1A 0S2

1991

6 typescript pages

Secretary of State / Secrétariat d'État

91-04724/

MULTILINGUAL SERVICES DIVISION – DIVISION DES SERVICES MULTILINGUES

TRANSLATION BUREAU BUREAU DES TRADUCTIONS

LIBRARY IDENTIFICATION – FICHE SIGNALÉTIQUE

Translated from - Traduction de	Into - En
Icelandic	English

Author - Auteur

Pall Olasson

Title in English or French – Titre anglais ou français

Mechanical shucking of scallops

Title in foreign language (Transliterate foreign characters)
Titre en langue étrangère (Transcrire en caractères romains)

Urskeljun horpudisks med velum

Reference in foreign language (Name of book or publication) in full, transliterate foreign characters.
Référence en langue étrangère (Nom du livre ou publication), au complet, transcrire en caractères romains.

Taeknitidindi rannsoknastofnun fiskidnadarins

Reference in English or French – Référence en anglais ou français

Engineering News of the Icelandic Fisheries Laboratories

Publisher - Éditeur	DATE OF PUBLICATION / DATE DE PUBLICATION			Page Numbers in original / Numéros des pages dans l'original
-	Year / Année	Volume	Issue No. / Numéro	1-3
Place of Publication / Lieu de publication				Number of typed pages / Nombre de pages dactylographiées
(Iceland)	1972	-	6	1-5

Requesting Department / Ministère-Client: DFO

Translation Bureau No. / Notre dossier nº: 3850541

Branch or Division / Direction ou Division: Scientific Publications, Ottawa

Translation (Initials) / Traducteur (Initiales): OM

Person requesting / Demandé par: Dr. Max Grandy
Northwest Atlantic Fisheries Centre
St. John's, Newfoundland A1C 5X1

Your Number / Votre dossier nº:

Date of Request / Date de la demande: 1991-04-12

Canada

SEC 5-111 (Rev. 82/11)

Secretary of State / Secrétariat d'État

MULTILINGUAL SERVICES DIVISION – DIVISION DES SERVICES MULTILINGUES

TRANSLATION BUREAU / BUREAU DES TRADUCTIONS

Client's No.–N° du client	Department – Ministère	Division/Branch – Division/Direction	City – Ville
-	DFO	Scientific Pubs	Ottawa, Ont.
Bureau No.–N° du bureau	**Language – Langue**	**Translator (Initials) – Traducteur (Initiales)**	
3850541	Icelandic	OM	8/5 - 91

Taeknitidindi rannsoknastofnun fiskidnadarins. Velar og taeki (Engineering News of the Icelandic Fisheries Laboratories. Equipment and machinery), No. 6, April 25, 1972, pp. 1-3 (Iceland)

Mechanical shucking of scallops

Scallop harvesting has increased a great deal in this country in recent years and is now carried out in a few places.

Scallops are all manually processed, i.e., the shells are opened, and the meat is manually cut out, and it is the only part that is kept.

However, there have recently been plans for machinery for the shucking of scallops according to an American design.

Scallop harvesting has during recent years also increased rapidly abroad, particularly off the British Isles and the east coast of North America.

The Icelandic Fisheries Laboratories investigated to what extent scallops are mechanically processed abroad.

Judging by the information that was collected, it may be concluded that this is taking place in the United States only, chiefly on board fishing vessels that have been constructed specifically for scallop harvesting and with equipment for scallop processing.

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Information seulement

According to information from the National Marine Fisheries Service of the USA (1), there is only one company in the USA that manufactures sets of machinery used to shuck scallops. This is Willis Brothers Inc., Williston, North Carolina.

The March issue of Commercial Fisheries Review 1970 (2) and the September issue of World Fishing 1970 (3), and others discuss scallop harvesting and scallop processing on board fishing vessels.

Particulars on the equipment and processing are contained in the patent of the company issued on 16 February 1971 (4). It is on file at the Icelandic Fisheries Laboratories, and a photocopy of it and the articles on the subject are available to those who wish to have them.

According to the above articles, 4 ships carried on scallop harvesting and processing with machinery from Willis Brothers early in 1969. The equipment had been tested on land but some changes nevertheless needed to be made to them on board the ships. However, by September of the same year, the output of a set of machinery had reached 4,000 lb of scallop meat per day.

Scallops, the so-called Calico scallops, are harvested mainly off the coast of Florida. The machinery cleans and sorts the catch, opens the shells and extracts the entrails, cleans away bits of shell, and then separates the meat from the viscera, etc., and packages and chills the scallop meat. It takes about 10 minutes to process scallops from the moment they land on deck to the meat being in finished packaging (2).

The above-mentioned patent (4) includes methods to 1) plunge the washed and cleaned scallops in water of 90°C for about 7 seconds, 2) equipment to loosen the entrails from the shell, 3) equipment to clean away bits of shell from the meat and the viscera and 4) equipment to separate the meat and the viscera, etc.

According to the article in World Fishing (3), the procedure used to make the shells open is the so-called "shock-heat-shock" method, which consists of first subjecting the shells to shocks using equipment with a special disk made for the purpose, then to hot water, and again to blows as before. The shells are said to open when this method is used.

Scotchmen and others have tried a method whereby scallops are rapidly agitated in hot or boiling water (5) to get them to open, but with varying results.

Different species of scallops will also behave in different ways when this method is used and varying success has been had with the shucking of the shells. It has been reported that it is easier to shuck Calico scallops than Bay scallops (6).

Many other methods have been attempted to open shellfish such as oysters, scallops, and the like. Of these, the use of microwaves could be mentioned (7, 8).

One more method that has been tried to open shellfish to get to the meat is to apply a hot jet of gas (6,000 °F) to the shell, so as to get it to open, and to get to the meat using a special device (9, 10).

None of the above-mentioned methods are in use any longer.

We should also mention a method that consists of the application of heat to open the shell and the use of suction equipment to clean the entrails etc. from the shell to get to the meat (11).

Various chemical methods have been tried to open scallops and other shellfish (12, 13), etc.

An article in Fishing Gazette, October 1966, mentions various equipment to open and clean oysters (14).

To date, there has been no mechanical processing of scallops in Canada (15).

We should finally mention that there have been studies on the use and quality on scallop produce (meat) processed using the Willis sets of machinery and that both proved to be as good as in manually processed scallops (16).

According to recent information, scallops processing on board the above-mentioned vessels has been discontinued but one aggregate is in use in North Carolina.

Sources:

bls. = pp.
bref = bulletin
o.fl. = et al.
hefti = issue

4. USA patent No. 3.562.855, issued on 16 February 1971.

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